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A question for DSM-V: which better predicts persistent conduct disorder – delinquent acts or conduct symptoms?

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ABSTRACT

Background *Conduct disorder (CD), a psychiatric index of antisocial behaviour, shares similarities with delinquency, a criminological index. This study sought to examine which factors in childhood predict a repeated diagnosis of CD in adolescence, and whether self-reported delinquent acts enhance the utility of symptoms of CD in predicting later persistent CD.*

Method *Longitudinal data used in this paper come from a clinic-referred sample of 177 boys, along with their parents and teachers, who were assessed using a structured clinical interview. The boys also reported on their delinquent behaviours, as well as a broad range of other family and life events.*

Results *Before age 13, 77 boys met criteria for CD according to their parent, 69 according to their own report, and 36 reported three or more delinquent acts. Forty-eight boys (29%) met criteria for CD three or more times between 13 and 17. In childhood, delinquency overlapped, but was distinct from CD. Both were present in 28 cases, while 41 cases had CD without delinquency, and eight had delinquency without CD. When tested as predictors of later persistent CD, child-reported CD was the strongest predictor of later persistent CD, but self-reported delinquency was stronger than parent-reported CD. A final model of significant predictors included child-reported CD, delinquency, poor child communication with parents, and maternal prenatal smoking.*

Conclusions *It appears that delinquency does add uniquely to the prediction of persistent CD. It may be useful to expand the diagnostic criteria for CD accordingly.*

Introduction

Despite advances in recent years, our understanding of persistent disruptive behaviour remains limited. Most studies of conduct disorder (CD) examine CD occurring once at a single measurement rather than persistent over time.

Additionally, although both psychiatry and criminology share a common interest in disruptive behaviour, research incorporating the two disciplines is uncommon. While CD and delinquency are clearly related, the constructs are distinct from one another.

CD is one of the most troubling of psychiatric diagnoses. It is associated with heavy costs (Knapp et al., 1999), despite its relatively low prevalence within the general population of roughly 2% (Lahey et al., 1999). Despite some fluctuation at the symptom level (Lahey et al., 1995), there is consistency over time in the diagnosis of CD (Cohen et al., 1993; Offord et al., 1992). Current CD behaviours present an increased risk for future CD behaviours (Cohen et al., 1993; Lahey et al., 1995; Offord et al., 2001). CD is also predictive of other types of conduct problems, such as frequent offending (Fergusson and Horwood, 1995) and APD (see Burke et al., in press for a review).

Delinquency measurement and outcomes

Like early CD, early delinquent behaviours are associated with poor outcomes (Tolan, 1987; Tolan and Gorman-Smith, 1998). Like CD, delinquency is relatively stable (Le Blanc et al., 1991), and the early onset of delinquency bodes poorly for later offending (Le Blanc and Loeber, 1998; Loeber and Farrington, 2001).

Overlap between CD and delinquency

CD is described as a persistent pattern of behaviour involving the violation of others' rights and societal rules and norms, and is defined by a set of entirely behavioural symptoms. While all delinquent behaviours are defined as violations of law, CD symptoms are not necessarily so defined. For example, symptoms such as 'has used a weapon' are often criminal offences (and thus overlap with delinquency) while 'bullies, threatens or intimidates' or 'stays out at night despite parental prohibitions' are less likely violations of law. One possible view of the way CD and delinquency overlap is that delinquency may be regarded as encompassing a wider range of behaviours, while CD may represent a restricted condition. Understanding areas of similarity and distinction between CD and delinquency is more than a theoretical matter. Any refinement of the referents used to identify and refer to CD will help to improve applied efforts in prevention, identification of at-risk youth, and treatment.

Because of their overlap, it is possible that the best set of childhood predictors of chronic CD, a psychiatric construct, may not be restricted to psychiatric domains. Conceivably, the best predictive model could draw on both criminology and psychiatry. Although CD and delinquency are often combined into a composite of conduct problems, several studies have examined the two distinctly, and have found the constructs to be significantly related

(Fergusson and Horwood; 1995; Foley et al., 1996; Loeber et al., 1991). Many of these studies also include measures of ADHD, and have found those with CD and ADHD symptoms at greater risk for delinquency (Loeber et al., 1990; Satterfield and Schell, 1997), and those with delinquency and ADHD to have more persistent CD (Moffitt, 1990).

Other predictors of CD

While many studies have investigated predictors of CD, only a relative handful have considered the prediction of persistent CD. This distinction may be important, in that those predictors of CD assessed on only one occasion would probably include outcomes of both transient and more enduring CD. A large body of literature exists on predictors of CD, which include parenting behaviour, neurotransmitters, SES and environmental factors, and other psychopathology. For a review of risk factors for CD, see Burke and colleagues (2002).

Predictors of recurrent CD have included the presence of ODD (Loeber et al., 1993), the early onset of CD itself, and the severity of CD behaviours shown by the child (Loeber, 1991). Additionally, the co-occurrence of CD with ADHD has been associated with persistent CD in several studies (Farrington et al., 1990; Loeber, 1988; Schachar et al., 1981). The presence of maternal antisocial personality disorder and low child verbal IQ have been found to predict persisting CD symptoms (Lahey et al, 1995). In their review of the literature on persistent CD, Frick and Loney (1999) reported consistent findings that children with a large number and multiple types of symptoms in multiple settings, with early onset, and with comorbid ADHD problems show more persistent CD.

This study was driven by several questions. First, how well do childhood measures of CD and delinquency predict later persistent CD? Which other individual, familial or environmental factors in childhood predict later persistent CD? Are any relationships between childhood CD and delinquency and later persistent CD better explained by the influence of these other individual or environmental factors? Are intrinsic or extrinsic factors more predominant among these predictors?

Method

Data were collected as part of the Developmental Trends Study (DTS), the details of which may be found in Loeber and colleagues (2000). In brief, 177 boys were recruited through clinic referrals at sites in Pittsburgh, Pennsylvania and Georgia. Boys were aged seven to 12 at the beginning of the study, and were followed annually. The sample was 70% Caucasian and 30% African-American. Participants were excluded if they suffered from mental retardation or psychosis.

Measures

The analyses examined risk factors within six domains (see Table 1 for domains and constructs). Risk, as used in these analyses, refers to those conditions of any given independent variable that increase the likelihood of a negative outcome.

Conduct disorder and other psychopathology

The NIMH Diagnostic Interview Schedule for Children (DISC-C; Costello et al., 1987), and parallel versions of the DISC for parents and teachers (DISC-P and DISC-T) were used to identify CD, using DSM-III-R criteria. However, because our intention was, in part, to consider subtleties among the referents of disruptive behaviour, we created CD constructs using criteria similar to the present DSM-IV. The primary distinction is the addition of 'often bullies,

Table 1: Independent variables examined by domain

Conduct Problems:
Psychotic Symptoms
Parent–reported CD
Child–reported CD
Teacher–reported CD

Child psychopathology:
Oppositional defiant disorder
Attention deficit/hyperactivity disorder
Major depression
Dysthymia
Separation anxiety disorder
Overanxious disorder

Other child factors:
Pubertal development
Cortisol levels
Full-scale IQ
Verbal IQ
Performance IQ
Performance>verbal split

Parental Psychopathology: Maternal/Paternal
Social phobia
APD
Mania
Major depressive disorder
Psychotic symptoms
Generalized anxiety disorder
Panic disorder
Obsessive compulsive disorder
Alcohol use or abuse
Drug use or abuse

Parenting variables:
Maternal prenatal smoking
Maternal prenatal drinking
Maternal prenatal drugs
Poor supervision
Poor child communication
Poor parental communication
Harsh discipline
Prenatal problems
Prenatal substance use
Ineffective discipline
Counter control

Demographics:
Broken family
Urban residence
Maternal age
African–American ethnicity
Siblings
Socioeconomic status

threatens or intimidates others' and 'often stays out at night despite parental prohibitions', which we had within our parent report for all phases. For child and teacher report, we also had 'bullying' for all phases. However, we queried 'stay out late' with children in only the first and second assessment waves, and not at all for teachers. This results in our having limited data for this item. One additional difference is the specification of 'lying to con' in DSM-IV compared with 'lying' without such qualification in DSM-III-R. Our assessment did not include the specification of lying 'to con' at any phase. See Table 2 for a list of the specific symptoms used to identify CD.

We examined the prediction from each informant in childhood (ages seven to 12) individually, rather than combining parent, child and teacher reports into a single index. The purpose of this was twofold: first, we wanted to see whether prediction differed between informants, and because our delinquency measure is based on child report alone, we wanted to be able to more specifically test for an effect of child report in our findings.

Persistent CD

The outcome variable, persistent CD, is defined as meeting DSM-IV diagnostic criteria for CD for at least three of the five years between ages 13 and 17. We combined parent and child symptom report at each age using an 'either/or' rule, using three positive symptoms to identify CD. Cases with three or more years of CD between the ages of 13 and 17 had persistent CD. Cases with more than two years of missing data ($n = 4$) were coded as missing.

Delinquency

The Self-Reported Delinquency Questionnaire (SRD; Elliot et al., 1985; Thornberry et al., 1995) was used to measure delinquency (see Table 3). The SRD was added in Year 3, and, when initially used, included retrospective questions of the earliest age for each delinquent behaviour. Because participants

Table 2: DSM-IV criteria for conduct disorder

1. Frequent bullying
2. Often starts physical fights
3. Using weapons
4. Physical cruelty to people
5. Physical cruelty to animals
6. Theft with confrontation of victim
7. Often out late without permission
8. Often truant from school
9. Vandalism
10. Breaking and entering
11. Frequent manipulative lying
12. Covert stealing
13. Forced sex
14. Deliberate fire setting to cause harm
15. Running away from home overnight

Note: Criteria from the DSM-IV (American Psychiatric Association, 1994).

Table 3: Delinquency items

Run away from home	Stealing from a car
Skipped classes or school	Bought, sold or held stolen goods
Lied about age to get into or buy something	Joy-riding
Hitchhiked	Vehicle theft
Carried a hidden weapon	Forging cheques, using slugs or fake money
Been loud or unruly in a public place	Wrongfully using credit cards
Begged for money from strangers	Defrauding someone
Been drunk in public	Attacking with a weapon
Property destruction	Other hitting with the intention to hurt
Fire-setting	Using a weapon or strong-arming to get money
Avoiding paying for goods or services	Throwing rocks or bottles at someone
Gone into a building to steal something	Gang fighting
Stealing property valued at $5 or less	Been paid for having sex
Stolen property valued between $5 and $50	Threatened someone for sexual favours
Stolen property valued between $50 and $100	Tried to force someone to have sex
Stolen property valued greater than $100	Selling marijuana
Shoplifting	Selling hard drugs
Purse snatching	

Source: Based on Elliott et al. (1985)

were nine to 14 when the measure was first introduced, there was some inconsistency in available prospective data on conduct problems. For that reason, we combined prospective and retrospective reports to determine the presence of childhood delinquency between ages seven and 12 as follows. Like CD, we required that three concurrent delinquency behaviours be present at the same age to identify delinquency. Since our retrospective data queried only the age of onset, our delinquency measure is somewhat conservative. It is possible that a greater number of participants might have reported three concurrent delinquent behaviours if we had asked for all intervening ages. Since the delinquency questionnaire asked about a diversity of delinquent acts, some largely similar to others, participants were asked if they reported the same act for both questions. Those who did were recoded to be present for one but not the other.

Other child factors

The WISC-R measured indices of IQ in childhood. A dichotomous indicator of performance-greater-than-verbal IQ split was also included, coded positive for performance scores 12 or more points greater than verbal scores. Salivary cortisol levels were measured during Year 4, and pubertal development as measured by the Peterson Pubertal Development measure, with those in the highest quartile of development at ages 12 and 13 coded as positive (Petersen et al., 1988).

Parental psychopathology and substance abuse

The parental psychopathology and substance abuse domain included parental psychopathology as measured by assessment with the SCID (Spitzer et al., 1987) during Year 1, when the children were ages seven to 12. Diagnoses included antisocial personality disorder, generalized anxiety disorder, social phobia, depression, the presence of three psychotic symptoms, alcohol abuse or drug abuse for both the mother and father.

Parenting behaviours

Constructs within the domain of parenting behaviours used data from the initial assessment. Scores on the parenting indices were dichotomized so that scores in the upper 25% of the distribution represented the presence of problematic parenting behaviour, and those in the lower 75% represented its absence (see Loeber et al., 2000 for more details).

Demographics

Urban residence is based on the 1990 US Census, and is coded as 'urban' if the population density exceeded one thousand people per square mile. Participants whose mother reported that they were not residing with the biological father of the study child at Year 1 were coded as present for broken family. The number of siblings in the household was dichotomized so that those with two or more siblings were coded as present. Socioeconomic status (SES; Hollingshead, 1975) is a five-point scale of social status. Young motherhood was defined as having a child at age 18 or younger.

Analyses

Variables were dichotomized by either using a natural dichotomy, or by coding the highest at-risk 25% of the distribution as '1', and the lower three-quarters of the distribution as '0'. There were no cases coded missing for childhood variables, but nine cases were missing more than two values between the ages of 13 and 17. Thus, out of a total of 177, 168 provided adequate valid data for the present study. Variables were screened prior to entry into the multivariate logistic regression. The logit distributions of any continuous scaled variables were examined using smoothed scatterplots to test the assumption of linearity within their logits. Univariate analyses employed chi-square tests for significance. Variables that produced 'zero cells' within the cross-tabulations were either eliminated from the analysis, or were recoded to eliminate the zero cell count.

To investigate predictors of persistent CD, logistic regression analyses were used. Several authors have suggested that in the selection of independent

variables in regression models, the traditional alpha value of 0.05 often fails to identify important variables (Hosmer and Lemeshow, 1989). To avoid this problem, the authors recommend the adoption of an alpha level of up to 0.25. We adopted an alpha value of 0.15 during the process of selecting variables for model entry.

The variables within each domain were entered into multivariate logistic regressions to identify those that were most strongly associated with the dependent variables. A backwards selection approach, with an elimination criterion of 0.05, was used to reduce these variable sets. The surviving variables from each domain were entered into the second stage of backwards logistic regression competing with those variables retained from other domains. In addition, the calibration and discrimination of each model was determined by examining the Hosmer and Lemeshow goodness-of-fit statistics, and the C statistics. In all cases, the model adequately fitted the data.

Results

There were 48 (28.6%) participants with persistent CD between the ages of 13 and 17. During childhood (ages seven to 12), 77 met CD criteria by parent report, and 69 by child report. There were 36 participants who were defined as delinquent during childhood based on self-report.

CD and delinquent behaviours

Figure 1 shows the prevalence of CD behaviours in childhood. The most frequent delinquent behaviours were hitting to harm (24.3%), throwing rocks or bottles (16.9%), shoplifting (15.3%), carrying a hidden weapon (15.3%), skipping school (14.7%), stealing something valued less than US$5 (13.6%), and vandalism (13.0%).

Childhood CD and delinquency as distinct but overlapping constructs

Among childhood problematic behaviour between ages seven and 12, delinquency was most highly related to child-reported CD (phi = 0.40) followed by teacher-reported CD (phi = 0.33) and parent-reported CD (phi = 0.18). However, it was also clear that CD and delinquency were distinct from one another. Delinquency and child-reported CD agreed in 128 cases, but in 100 cases the agreement was on the absence of conduct problems. In cases where either CD or delinquency was present, there were more cases of CD without delinquency (41) than of both CD and delinquency (28), and in eight cases delinquency was present without CD. The distinction is even greater when parent-reported CD is compared with delinquency, with 22 cases where both CD and delinquency are identified, 55 cases of CD without delinquency, and 14 cases of delinquency without CD.

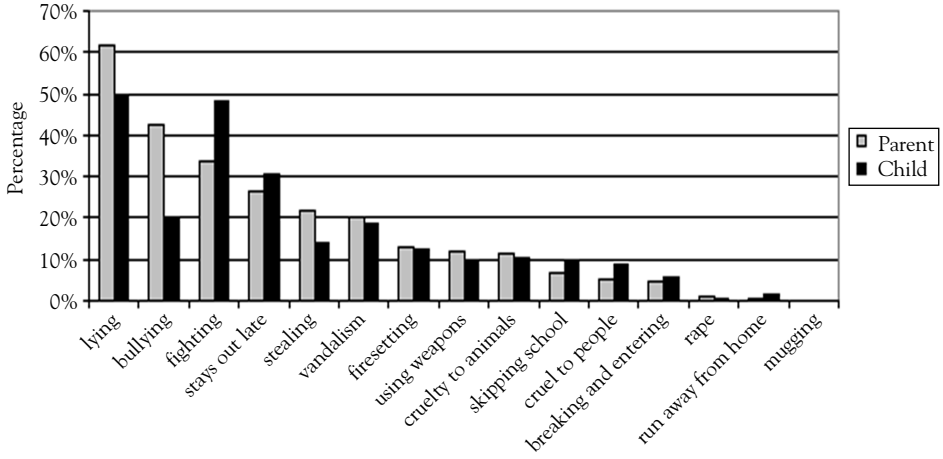

Figure 1: CD symptoms reported by parent and child.

Prediction of persisting CD

All indices of childhood conduct problems were significantly predictive of persistent CD (see 'conduct problems', Table 2). To test their relative strengths, a backwards logistic regression was conducted. This demonstrated that child-reported CD (Wald(1) = 9.40, p = 0.002; OR = 3.47), delinquency (Wald (1) = 7.51, p = 0.006; OR = 3.46) and parent-reported CD (Wald (1) = 4.05, p = 0.044; OR = 2.20) were significant, while teacher-reported CD was not. This suggests that, in addition to CD, delinquency adds uniquely to the prediction of persistent CD. We took several steps to ensure that collinearity was not a threat to the interpretation of the model. First, the values of Cohen's kappa for each bivariate association between delinquency, child-, parent- and teacher-reported CD did not exceed 0.40. Second, none of the coefficients for the variables in the model exceeded 2 (Menard, 1995). Child-reported CD had the highest coefficient, at 1.2. The standard errors within the model were all of reasonable size. Finally, with all four predictors in the model, all tolerance statistics exceed 0.75, well above the criterion of 0.20 identified by Menard (1995).

Other predictors of persistent CD

Within each domain, bivariate associations with persistent CD were tested (Table 4). A backwards regression was conducted to select the strongest of the significant bivariate predictors of persistent CD from that domain (Table 5). From 'other child psychopathology', only ODD (p = .011) was retained. In the domain of parental psychopathology, we decided to include paternal alcohol abuse rather than use because of their relative strengths. Predictors retained in

Table 4: Significant childhood bivariate predictors of persistent CD

	χ^2	*p*	OR
Child conduct problems:			
Delinquency	23.01	0.000	6.40
Parent-reported CD	10.81	0.001	3.15
Child-reported CD	24.39	0.000	5.74
Teacher-reported CD	6.24	0.013	2.49
Child psychopathology:			
Major depressive episode	3.03	0.080	1.84
Dysthymia	4.87	0.030	2.26
ODD	10.29	0.001	13.64
ADHD	4.27	0.040	4.33
Other child factors (no significant predictors)			
Parental psychopathology:			
Maternal APD	3.39	0.120[a]	3.37
Maternal generalized anxiety disorder	2.35	0.130	1.99
Maternal social phobia	4.74	0.040[a]	4.54
Maternal drug use	3.28	0.070	1.89
Paternal alcohol use	4.84	0.028	2.33
Paternal alcohol abuse	5.78	0.016	2.14
Parenting behaviours:			
Maternal prenatal smoking	8.83	0.012	n/a
Poor supervision	2.71	0.100	1.80
Poor child communication	14.45	0.000	3.99
Poor parent communication	2.96	0.085	1.89
Harsh discipline	4.73	0.030	2.36
Prenatal problems	4.01	0.045	2.00
Demographics:			
Broken family	3.11	0.078	1.92
Siblings	2.80	0.095	1.81
Socioeconomic status	9.38	0.052	n/a

Notes: [a]Fisher's exact test used due to expected cell count(s) below 5. All comparisons were on 1 degree of freedom (d.f.), except maternal prenatal smoking (2 d.f.) and socioeconomic status (4 d.f.).

the model were maternal social phobia ($p = 0.065$) and paternal alcohol abuse ($p = 0.026$). Poor child communication ($p = 0.001$) and maternal prenatal smoking ($p = 0.076$) were retained from the parenting behaviours domain. Of the predictors from the demographic domain, only broken family ($p = 0.074$) was retained for further analyses.

The six significant variables from domains other than child conduct problems (ODD, maternal social phobia, paternal alcohol abuse, prenatal smoking, poor child communication and broken family) were regressed on persistent CD. The variables maternal social phobia, paternal alcohol abuse, and broken family were removed from the model, while the others were retained. The sig-

Table 5: Final model for the prediction of persistent CD

	B	S.E.	Wald	df	Sig.	OR
Child-reported CD	1.34	0.421	10.09	1	0.001	3.81
Delinquency	1.44	0.472	9.32	1	0.002	4.23
Prenatal smoking	0.45	0.229	3.94	1	0.047	1.58
Poor child Communication	1.29	0.438	8.60	1	0.003	3.61

Note: Variables removed from the model: ODD, Parent–reported CD.

nificant variables were tested, along with parent- and child-reported CD and child-reported delinquency, in a final regression model using backwards selection. In the final model (Table 5), child-reported CD and delinquency, maternal prenatal smoking, and poor child communication were significant. Again, collinearity was a concern, because of the strong relationships between ODD, CD and delinquency. An examination of diagnostic indicators, as described above, revealed no problems of collinearity. No significant interactions among the variables in the final model were found.

Discussion

Several limitations must be kept in mind before interpreting the current findings. First, the data come from a clinic-referred sample, and may thus represent a more severely impaired segment of the population of conduct problem boys. Second, the inclusion of both retrospective and prospective data in the construct of delinquency may have introduced a bias due to problems related to recall of the age of delinquent behaviour. Whether or not a delinquent act had been committed is less likely to have been affected by problems of recall than whether or not the behaviour occurred between the ages of seven and 12. Additionally, if a behaviour was reported to have occurred at age six (or earlier), data were not available to determine whether the behaviour had also been committed thereafter. Fortunately, there were relatively few cases of delinquent acts reported before age seven, thus the reduction of the cases of self-reported delinquency due to the latter problem is probably small.

The most striking finding is the strength of boys' self-reported delinquent acts relative to parent-reported CD. Though significantly predictive of later persistent CD, parent-reported CD was a weaker predictor than delinquency. Delinquency, in fact, was retained in the final model of predictors while parent-reported CD is not. Other studies have suggested that the diversity of conduct problems or delinquent behaviours is a strong predictor of later impairment (Loeber and Le Blanc, 1990; Tolan and Loeber, 1993). Given that the delinquency variable included a greater diversity of behaviours than the CD construct, this may help to explain the present findings as well. Clearly,

all three indices (parent- and child-reported CD and delinquency) contribute to the prediction of later CD, and are clinically relevant. However, the contribution of parent-reported CD appears to be better explained by the other factors in the final model.

The findings that self-reported delinquency predicted persistent CD better than parent-reported CD, and that self-reported delinquency contributed uniquely to the prediction of CD after child-reported CD and other predictors are accounted for, is significant for a number of reasons. First, for the clinical purposes of treatment and prevention of serious CD, it seems that it would be worthwhile to include queries for a broader range of delinquent acts in any assessment of conduct problems. This finding is also significant to the issue of the identification of CD. It suggests that it may be worthwhile in future revisions of DSM-IV to increase the breadth of behaviours sampled for the diagnostic definition of CD. It should be kept in mind that the most prevalent individual delinquent items are not meaningfully different from the diagnostic criteria of CD, but represent greater breadth of problem behaviour. Thus, we do not conclude that major changes in the types of behaviour assessed for the diagnosis of CD should be undertaken. However, the findings do suggest that assessment of CD in children should at least include a range of specific, concrete examples and a broader sample of disruptive behaviour. Additional predictive utility may come from the inclusion of callous and unemotional behaviours, as reported in Loeber, Burke and Lahey (this issue).

It appears, based on our model, that, while factors intrinsic to the individual are strong factors in predicting persistent CD, external factors contribute as well. Specifically, the child's perception of poor communication between parents and himself is associated with a greater than threefold risk for persistent CD. This is consistent with other studies, which suggest that the quality of parent–child interactions contributes to conduct problems (Pike et al., 1996; Stoolmiller et al., 1997; Stormshak et al., 2000). Unfortunately, with the present data, we cannot test whether poor communication is itself causal in the persistence of CD, is reflective of some unmeasured factor in parent–child relations, or reflects the actual influence of some other domain.

Maternal prenatal smoking has been found to predict the presence of later CD within this sample in a previous paper using a portion of these data (Wakschlag et al., 1997). Other studies have found prenatal smoking to predict the prepubertal onset of CD (e.g., Weissman et al., 1999), and the presence of oppositional and aggressive behaviours in early childhood (Day et al., 2000). The present analyses confirm and extend the findings of Wakschlag and colleagues (1997) by demonstrating the prediction of maternal prenatal smoking for persistent adolescent CD using additional data from the same sample followed later into adolescence, even when controlling for the presence of CD in childhood.

Future studies should examine whether the prediction of persistent CD is improved through the use of a broader assessment of CD-like delinquent

behaviours, or whether delinquency represents a separate and distinct process that serves to add to the prediction of persistent CD. That is to say, are those who persist with CD notable for engaging in more diverse problematic behaviour earlier (a difference of degrees) or because there is a qualitatively distinct pathway (such as 'criminality' versus 'psychiatric impairment') followed by those who show delinquent behaviours in childhood. Studies focusing on the DSM taxonomy of disruptive behaviour should more deliberately investigate the unique contribution of delinquency items over and above CD symptoms, rather than in competition with the strongest CD symptoms, as we have done here. Studies should also examine the prediction from individual CD and delinquent behaviours to test which sets provide the greatest prognostic utility.

It is also necessary to further the study of multiple pathways to persistent CD. Perhaps the inclusion of a greater number of conduct-problem referents as we have done here allowed us to better identify those boys with problems along multiple trajectories, such as those identified by Loeber and Hay (1994). Additionally, it may be that these referents more thoroughly capture multiple dimensions of conduct problems, such as the overt–covert distinction among CD behaviours as identified by Loeber and colleagues (Frick et al., 1993; Loeber and Schmaling, 1985). Finally, the replication of these findings in studies with population samples will help to refine the implications of this study. Such samples may conceivably demonstrate different severity profiles with different predictive values among the referents of conduct problems from the clinically referred boys in this study.

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